

Important Advances in Clinical Medicine

Epitomes of Progress—Otolaryngology

The Scientific Board of the California Medical Association presents the following inventory of items of progress in Otolaryngology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist the busy practitioner, student, research worker or scholar to stay abreast of these items of progress in Otolaryngology which have recently achieved a substantial degree of authoritative acceptance, whether in his own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Otolaryngology of the California Medical Association and the summaries were prepared under its direction.

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Bone Grafts in Head and Neck Surgery

BONE GRAFTS can be divided for immunological purposes into three categories: (1) autografts, in which donor and recipient are the same; (2) homografts, in which both donor and recipient belong to the same species (including the subdivisions of allogenic, in which the donor is unrelated, and isogenic, in which the donor is closely related); and (3) heterografts, in which the donor and recipient are of different species.

Without exception, best results are still obtained with autografts, although poor remodeling, non-union, resorption, and lack of osteogenesis occur in particular with solid, cortical implants, especially if intractable infection occurs. A notable advance has been the use of combination cancellate bone and marrow in preformed containers. The use of homograft bone in such a container is currently under investigation. Experimentation continues on best methods of preserving grafts, but to date, grafts which are expected to contain viable cells and promote osteogenesis have been autografts.

Reconstructive problems which require only an inert substance to maintain contour may utilize

homograft or heterograft substances. An exception may be the recent successes of homograft ossicles, although wide investigative experience must still be obtained. With improving techniques of storage and alteration to remove potential immunologic characteristics of graft materials, the storage and use of homograft bone in partial or complete anatomic form appears to hold promising possibilities.

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Homografts in Otology

RESTORATION OF HEARING by homograft reconstruction of the ossicles, tympanic membrane and posterior osseous external canal defects is now a clinical reality. Middle ear and canal malformations or defects resulting from embryologic impropriety, infection, tumor or trauma may often be repaired by using homograft tissue.

Ear transplant material is removed from the donor within 24 hours of death. There is no donor

age limit although the donor should be free of infectious or malignant disease. The homograft tissue is procured by removing a portion of the temporal bone from the floor of the middle cranial fossa, which includes the middle ear and external auditory canal. Techniques for sterilizing, processing and preserving ear transplant tissue are established and such banked tissue is now available to ear surgeons.

The use of otologic homograft tissue is an attractive alternative because reconstruction using various types of plastics and metals has not been very successful. Extrusion of alloplastic materials in the middle ear is fairly common. The results of homograft ear operations during the past five years are most encouraging. There are no reports of extrusion or rejection of otologic homograft tissue.

MANSFIELD F. W. SMITH, MD

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The Cytotoxic Test for Diagnosing Food Allergies

THERE HAVE BEEN a number of efforts to devise and utilize clinical methods for diagnosing food allergens: Rowe, Rinkel, Randolph, Lee and others have made contributions. Nevertheless laboratory methods seemed desirable due to the large amount of time used in the clinical methods, except for skin tests, which carry about 75 percent error. In 1956 Black proposed the use of the cytotoxic reaction for diagnosis of food allergy. This presumably was based on the experiments of Byron H. Wacksman.

We took up the test in 1957, gradually refining the technique so that it is now fairly reliable, the main remaining difficulties being the changing of the patients' diet and the fact that diagnoses are often multiple.

As we do it, the cytotoxic test consists of observing with the microscope the reactions of the blood cells (principally the activity of the neutrophils) to the food extracts in the presence of the patient's serum. All glassware which comes in contact with blood cells must be chemically clean and "silicated." Known accurate amounts of food extracts are used (0.1 mg of the powder per ml of pyrogen-free water overnight, then decanted and further diluted). Rings of vaseline the size of

the coverslips are put three per slide to hold (1) the food extract; (2) the cells and serum, and (3) the coverslips. After an hour the cells are observed and the results recorded for each food.

After 15 years of use on almost 5,000 patients, and 250,000 individual tests, many and even some spectacular cures have been accomplished.

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Acupuncture and Deafness

INFORMAL CLAIMS from China during the past two years have engendered considerable enthusiasm among patients for using acupuncture to treat sensorineural hearing losses. Experience in the United States is quite limited but of the several attempts at treatment by persons generally recognized as experienced acupuncturists, none have been successful when documented before and after by audiograms. Thus, while we can in no way state with certainty that acupuncture does not help deafness, the present evidence is negative.

It has been argued that such failures probably result from the use of the more traditional acupuncture points instead of newer ones discovered by China's Barefoot Doctors. They may be correct, but since one of these new points requires that a needle be inserted between C₁ and C₂ to a depth of 3 to 4 inches, it probably will be a long time indeed before practitioners of a more conservative bent find out.

F. BLAIR SIMMONS, MD

Diagnostic Uses of Immunoglobulins

OTOLARYNGOLOGISTS AND IMMUNOLOGISTS are investigating the presence, quantity, and function of immunoglobulins in the respiratory tract. These immunoproteins, IgG, IgA, IgM, IgD and IgE, are part of the gamma and beta fractions of serum and are also present on mucous membrane surfaces and in various body fluids. The technique most commonly used to quantitate these immunoglobulins (except IgE) is termed "single radial diffusion," implying incorporation of a monospecific antibody in the agar used for immunodiffusion studies; and serum levels of the immunoglobulins have been determined throughout the human life span. By varying antibody concentration in